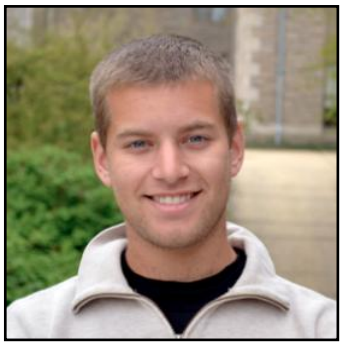
Name: Gorgone, Nicholas



Education Institution: Connecticut College
Major(s)/Degree/Grad Year: BA in Astrophysics/2011
NASA MSFC Mentor: Chryssa Kouveliotou & Alexander van der Horst – VP 62

Research and Experience

Independent Research – Finding the Physical Manifestations of Skoll and Hati (Ongoing)

- Translating and tracing the etymology of ancient Scandinavian texts
- Explaining basic Astronomy knowledge to the ley reader

Independent Study – Adaptation of Astronomy Labs for Undergraduates (Fall 2010)

- Evaluated strengths, weaknesses, educational goals, and level of difficulty of Contemporary Laboratory Experiences in Astronomy (CLEA).
- Created learning plans, key word lists, and lab procedure outlines and adapted the lab for Connecticut College learning objectives

NASA Marshall Undergraduate Student Research Program (Summer 2010)

- Used data taken from the Gamma-ray Burst Monitor onboard the Fermi Space Telescope to do statistical analysis on temporal parameters from Soft Gamma Repeater J1550-5418
- Collaborated with Chryssa Kouveliotou and Alexander van der Horst to utilize a variety of computer software packages and technology used in gamma-ray detection

Membership and Activities

- The American Physical Society (APS)
- Society of Physics Students (SPS)
- American Astronomical Society (AAS)
- Connecticut College Ultimate Frisbee – Dasein

Honors and Awards

- NASA's Marshall Space Flight Center, Summer 2010 Intern Poster Session 3rd prize - Science category
- U.S. Marines Semper Fidelis award for musical excellence (2007)
- Principal Chair clarinet in the Maine All-State Orchestra, Portland Youth Wind Ensemble, and Portland Youth Symphony Orchestra (2007)
- Accepted to march in the Macy's Great American Marching Band (2007)
- Northern Chi Martial Arts Center, Brunswick, ME, Black belt in Kenpo Karate (2005)

Title or Poster:

Time Resolved Spectroscopy of Bright Bursts from the Soft Gamma Repeater SGR J1550-5418

Abstract:

Magnetars, slowly rotating neutron stars with tremendous magnetic fields (>10^{15} Gauss), are some of the most extreme objects in our Universe. Less than twenty of these objects have been discovered to date. The sources are dormant most of their lifetimes, but become randomly active, emitting multiple soft gamma-ray (SGR) bursts. Here we present our results from spectral analysis of bursts from SGR J1550-5418 emitted during a burst active episode between 2009 January 22 - 29. We have analyzed all bursts recorded with the Gamma-ray Burst Monitor (GBM) on board the Fermi Observatory with a photon flux greater than 5 x 10^{-6} erg/s/cm^2 or a fluence greater than 10^{-6} erg/cm^2 in the 8-200 keV energy range. We fit the time-integrated and time-resolved spectra of these bursts with Comptonized, optically thin thermal bremsstrahlung (OTTB), and double black body theoretical models. Here we present the distributions of the temperature, peak energy, and surface area of emission derived using these models and discuss how these data will help us better understand the emission mechanism of SGR bursts.